TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2017-05-15-07** **Date: 16-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer's Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	15-05-17
Sample ID No	:	2017-05-15-07/01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	15-05-17

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	2.55	–
2	Finess by Air permeablity method (m^2/kg, Min)	285.5	225m^2/kg, Min
3	Density (gm/cc)	3.24	–
4	Standard Consistency (%)	29.0%	Not specified
5	Initial Setting time	185 minutes	Not less than 30 minutes
6	Final Setting time	260 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	2mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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Prepared by
Harshitha

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P Bangalore-560024

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Certificate No.: T- 4358

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2017-05-15-07** **Date: 12-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer's Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	15-05-17
Sample ID No	:	2017-05-15-07/01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	15-05-17

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	29.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.5N/mm^2	Not less than 37 N/mm^2
3	28 Days	57.5N/mm^2	Not less than 53 N/mm^2

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Prepared by
Harshitha

As Ward No 6

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Authorized Signatory
Quality Manager

Page 1/1
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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2017-05-15-07** **Date: 18-05-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	15-05-17
Sample ID No	:	2017-05-15-07-02(a)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	15-05-17

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	266	266	5.3	94.7	90-100
3	10 mm	2760	3026	60.5	39.5	25-55
4	4.75 mm	1780	4806	96.1	3.9	0-10
5	Pan	194	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2017-05-15-07** **Date: 18-05-17**

Sample ID No : 2017-05-15-07-02(a)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	**12.8**	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	**12.1**	
3	Specific Gravity	**2.69**	–
4	Bulk Density(Loose) (Kg/l)	**1.53**	–
5	Bulk Density(Compacted) (Kg/l)	**1.56**	–
6	Water Absorption(%)	**0.19**	–
7	Aggregate crushing Value(%)	**22.8**	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	**21.8**	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2017-05-15-07** **Date: 19-05-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	15-05-17
Sample ID No	:	2017-05-15-07-02(b)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	16-05-17

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	255	255	1.7	98.3	90-100
3	20 mm	5798	6053	40.4	59.6	30-70
4	10 mm	4301	10354	69.0	31.0	10-35
5	4.75 mm	4118	14472	96.5	3.5	0-5
6	Pan	528	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2017-05-15-07** **Date: 19-05-17**

Sample ID No : 2017-05-15-07-02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	**11.8**	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	**10.5**	
3	Specific Gravity	**2.64**	_
4	Bulk Density(Loose) (Kg/l)	**1.51**	_
5	Bulk Density(Compacted) (Kg/l)	**1.55**	_
6	Water Absorption(%)	**0.25**	_

Note:

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Prepared by
Harshitha

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R.KARTHIK RECHAN
Authorized Signature
Quality Manager

AE ward No 6

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P Bangalore-560024

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TEST REPORT OF FINE AGGREGATE

Lab ID	:	**CP-2017-05-15-07** **Date: 19-05-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer's Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	15-05-17
Sample ID No	:	2017-05-15-07/03
Sample Type	:	Fine Aggregate
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	16-05-17
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	88	88	8.8	91.2	90-100	90-100	90-100	95-100
3	2.36 mm	143	231	23.1	76.9	60-95	75-100	85-100	95-100
4	1.18 mm	178	409	40.9	59.1	30-70	55-90	75-100	90-100
5	600 micron	188	597	59.7	40.3	15-34	35-59	60-79	80-100
6	300 micron	176	773	77.3	22.7	5-20	8-30	12-40	15-50
7	150 micron	138	911	91.1	8.9	0-10	0-10	0-10	0-15
8	Pan	89	1000	100.0	0.0	---	---	---	---
Result :The tested Sample Conforms to Grading Zone II									

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2017-05-15-07** **Date: 19-05-17**

Sample ID No : 2017-05-15-07/03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.55	_
2	Specific Gravity	2.58	_
3	Material finer than 75 micron(%)	5.1	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Harshitha

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Quality Manager

AE ward No 6

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TEST RESULTS OF STEEL

Lab ID	:	**CP-2017-05-16-03**	**Date: 18-05-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP,	
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.	
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.	
Customer's Reference	:	BBMP/EE/BTP/WO/20/2016-17	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	15-05-17	
Sample ID No	:	2017-05-15-03/01	
Sample Type	:	Indus	
Reference to BIS codes	:	IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.	
Date of test:	:	16-05-17	

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	Indus	Fe500	8	0.392	560	684	19.0%	Satisfactory	Satisfactory
2	Indus	Fe500	10	0.612	578	690	18.0%	Satisfactory	Satisfactory

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Prepared By:
Harshitha

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL|
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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2017-05-30-07** **Date: 04/06/2017**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.

Agency : Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.

Customer's Reference : BBMP/EE/BTP/WO/20/2016-17

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 30-05-17

Sample ID No : 2017-05-30-07/01

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 04/06/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M20	28/05/2017	04/06/2017	150.32 X 150.38 X 150.37	22605	8.433	404.6	17.9	18.0
2	PCC	M20	28/05/2017	04/06/2017	150.28 X 150.25 X 150.31	22580	8.376	415.5	18.4	
3	PCC	M20	28/05/2017	04/06/2017	150.33 X 150.38 X 150.39	22607	8.445	397.9	17.6	

Note:

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Prepared by
Harsitha

AE ward No 6

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TEST REPORT OF CEMENT CONCRETE CUBES

Date: 25/06/2017

Lab ID	:	**CP-2017-05-30-07**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer's Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	30-05-17
Sample ID No	:	2017-05-30-07/02
Customer ID	:	PCC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	25/06/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M20	28/05/2017	25/06/2017	150.29 X 150.38 X 150.24	22601	8.211	506.3	22.4	22.4
2	PCC	M20	28/05/2017	25/06/2017	150.26 X 150.25 X 150.23	22577	8.199	514.7	22.8	
3	PCC	M20	28/05/2017	25/06/2017	150.28 X 150.23 X 150.28	22577	8.178	498.9	22.1	

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TEST REPORT ON BITUMEN

Lab ID	:	**CP-2017-06-20-03** **Date: 21-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Project Name	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer's Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	20-06-17
Sample ID No	:	2017-06-20-03/01
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	20-06-17

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**66**	60 to 70
2	Softening Point, °C	**47.2**	Min. 40°C
3	Ductility, cm	**92**	Min. 75cm
4	Flash point, °C	**229.5**	Min. 220°C
	Fire point, °C	**238.5**	

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2017-06-19-01** **Date: 21-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-06-17
Sample ID No	:	2017-06-19-01/01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	19-06-17
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	330	330	3.0	97.0	95-100
22.4	2173	2503	22.8	77.2	60-80
11.2	2068	4571	41.6	58.4	40-60
4.75	2428	6999	63.6	36.4	25-40
2.36	1769	8768	79.7	20.3	15-30
0.6	547	9315	84.7	15.3	8-22
0.075	1258	10573	96.1	3.9	0-5

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Prepared By:
Harshitha

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2017-06-19-01** **Date: 13-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-06-17
Sample ID No	:	2017-06-19-01/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	19-06-17

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	13.7%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.6%	
Combined Flakiness and Elongation Index for WMM	26.3%	

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2017-06-19-01** **Date: 13-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-06-17
Sample ID No	:	2017-06-19-01/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	19-06-17

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	315.0	315.0
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	72.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	241.7	240.4
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.6
5	Aggregate impact value	(B/A)*100	23.1	23.5
6	Aggregate impact value (Mean of two tests)	Pecentage	23.3	

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR SEMI DENSE BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2017-06-22-02** **Date: 24-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-06-17
Sample ID No	:	2017-06-26-02/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	22-06-17

Physical Requirements fo Coarse Aggregate for Semi Dense Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.5	Combined Flakiness & Elongation Index is Maximum 30%	IS:2386 Part I
	Elongation Index	11.9		
Strength	Aggregate Impact Value	22.7	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.57	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.25	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2017-06-22-02** **Date: 24-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-06-17
Sample ID No	:	2017-06-22-02/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	22-06-17

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-16
1	Marshal Stability at 60°C, KN	10.19	10.48	8.2KN(min)
2	Marshal flow at 60°C, mm	3.15	3.12	2-4
3	Percent air Voids	3.79	3.95	3-5
4	Percent Voids in mineral Aggregate(VMA %)	13.38	13.45	13-15
5	Percent Voids filled with Bitumen(VFB %)	70.32	70.0	65-75
6	Density, g/cc	2.24	2.25	–

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TEST RESULTS OF GRADATION FOR SDBC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2017-06-22-02** **Date: 24-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency.	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by the Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-06-17
Sample ID No	:	2017-06-22-02/01
Type of Mix	:	SDBC-Plant (Semi Dense Bituminous Concrete)
Date of test	:	22-06-17
Oven Dry Weight(gm)	:	5000

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100	100
9.5	396	396	7.9	92.1	90-100
4.75	2178	2574	51.5	48.5	35-51
2.36	1128	3702	74.0	26.0	24-39
1.18	535	4237	84.7	15.3	15-30
0.3	308	4545	90.9	9.1	9-19
0.075	229	4774	95.5	4.5	3-8
PAN	226	5000	100.0	0.0	0

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2017-06-22-02** **Date: 24-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-06-17
Sample ID No	:	2017-06-22-02/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	22-06-17

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.0	Minimum Retained Coating 95%
2	97.5	2.5		
3	98.0	2.0		

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TEST RESULTS OF BITUMEN CONTENT FOR SDBC
(AS per IRC:SP:-11-1984)

Lab ID	:	**CP-2017-06-26-02**	**Date: 28-06-17**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.	
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to roads and drains at right hand side of Maruthi Layout in Ward No.06 Byatarayanapura Sub Division.	
Agency	:	Sri.V.Chandrappa, Contractor, Dasarahalli, Hebbala (P), Bangalore-24.	
Customer Reference	:	BBMP/EE/BTP/WO/20/2016-17	
Source of Sample	:	Sample supplied by Agency	
Date of Receipt	:	26-06-17	
Sample ID No	:	2017-06-26-02/01	
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)	
Date of test	:	26-06-17	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	475	474
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.00	5.20
4	Average percentage	%	5.10	

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Lab ID : **CP-2017-06-26-02** **Date: 28-06-17**

Sample ID No : **2017-06-26-02/01**

AFTER EXTRACTION (Trail-1)

Oven Dry Weight(gm) : 475

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	41	41	8.6	91.4	90-100
4.75	208	249	52.4	47.6	35-51
2.36	110	359	75.6	24.4	24-39
1.18	41	400	84.2	15.8	15-30
0.3	26	426	89.7	10.3	9-19
0.075	23	449	94.5	5.5	3-8

AFTER EXTRACTION (Trail-2)

Oven Dry Weight(gm) : 474

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	40	40	8.4	91.6	90-100
4.75	210	250	52.7	47.3	35-51
2.36	103	353	74.5	25.5	24-39
1.18	46	399	84.2	15.8	15-30
0.3	29	428	90.3	9.7	9-19
0.075	24	452	95.4	4.6	3-8

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